

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COINBASE, INC.,

Petitioner

v.

REGINALD MIDDLETON

Patent Owner.

IPR2023-00751

U.S. Patent 11,196,566

**PETITIONER'S REQUEST FOR REHEARING OF THE
DECISION DENYING INSTITUTION**

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I. Introduction

Petitioner respectfully requests rehearing of the October 11, 2023 Decision Denying Institution (“D.I.”) of the *Inter Partes* Review Petition of U.S. Patent 11,196,566 (“the ’566 patent”). In the Institution Decision, the Board misapprehended the teachings of the ’566 patent regarding the plain and ordinary meaning of “*reference¹ to ... [a] data source*”, misapprehended Petitioner’s argument and supporting evidence demonstrating the combination of Hearn and Armstrong discloses a “*reference to ... [a] data source*”, in the same manner as the ’566 patent, and misapprehended Petitioner’s argument demonstrating the combination rendered obvious the “*expiration timestamp*” limitation [1B.3]. Respectfully, these errors require rehearing and reversal of the institution denial.

II. Argument

A. Petitioner’s Substantial Evidence Established the Combination Discloses a “*Reference to at Least One of a First Data Source...*” [1B.2].

The Board found that “Petitioner has not shown a reasonable likelihood of prevailing” on limitation [1B.2]—“*a reference to at least one of a first data source or a second data source.*” (D.I., 18-21.) Despite Patent Owner (“PO”) not offering any expert declaration or extrinsic evidence to support its positions, the Board appears to have largely adopted PO’s mischaracterizations of its own patent and Armstrong in reaching this determination. Specifically, the Board premises its

¹ Language of the challenged claims indicated by italics throughout

conclusion on two findings, both of which are erroneous because the Board misapprehended evidence and arguments presented in the Petition.

1. The Evidence of Record Establishes that the Identification of a Currency is a “*Reference*” to a “*Data Source*.”

First, the Board found that “Petitioner has not directed us to any persuasive evidence that identification of the currency used in the transaction (i.e., USD) is a reference to a ‘data source’ as that term is used in the ’566 patent.” (D.I., 20.) This finding is in error because the Board misapprehended the evidence of record showing the plain and ordinary meaning of “*reference to ... [a] data source*” [1B.2]. (See Pet., 14; POPR, 5 (plain and ordinary meaning applies to claim terms).)

The ’566 patent teaches that a “data source comprises an external data feed, internal database, another data source, etc.” (CB-1001, 15:38-40; see Pet., 42.) As admitted by the PO in the POPR, the “*data source*” provides information for use in the calculation being performed by the facilitating device. (See POPR, 9 citing CB-1001, 15:31-38.) In the portion of the ’566 patent cited by the PO and Petitioner, the information provided by the “*data source*” includes an exchange rate between the base or quote instrument and the denominating asset: “the data source provides the value at t of one or more of: the base instrument, the quote instrument, the base instrument in terms of the denominating asset b_t , the quote instrument in terms of the denominating asset q_t , or the base instrument in terms of the quote instrument (e.g., if the base instrument or the quote instrument is also the denominating

asset).” (See POPR, 9-10, *citing* CB-1001, 15:41-48; Pet., 42.) The “*reference to ... [a] data source*” is therefore an indication that refers the system to a “*data source*” for information (e.g., exchange rate) needed to perform a calculation.

The only examples provided in the ’566 patent support that an “identification of the currency used in the transaction” is a “*reference to ... [a] data source*”. The Petition and supporting declaration by Dr. Miller reference the swap agreement example in the ’566 patent, which states:

To illustrate by way of example how some of the various components above may be used together to facilitate various basic swap agreements, the following steps occur in one embodiment using the Bitcoin or similar protocol as the transfer mechanism, where the parties do not trust each other, and the facilitator is not fully trusted by any of the parties:

1. A first client transmits an offer to a facilitator, the offer comprising terms, the terms comprising:

a. a reference to a data source comprising at least one of: a **base instrument and a **quote instrument**;**

b. a principal amount;

c. an expiration timestamp;

d. optionally a reference to a denominating asset;

e. optionally, a collateral amount; and

f. optionally, a disbursement function;

Example Terms:

Base: USD

Quote: AUD

Denominating: BTC

Principal: 0.5 (BTC)

Collateral: 2×principal

$$res_{base}(b_o, q_o, b_f, q_f): \text{principal} \times \frac{b_f - b_o}{q_f - q_o}$$

Expiration: 2014-06-01T12:34:56Z

(CB-1001, 11:46-12:11 (coloring and borders added); *see* Pet., 42; CB-1003, ¶108.) As shown, and discussed in the Petition, the example terms of the swap offer include “Base: USD” (shaded blue) and “Quote:AUD” (shaded red) which are each a “reference to a data source.” (Pet., 42.) These terms (USD/AUD) are not the data source, or the information stored in the data source. Instead, they act as an indication of the entity (data source) to consult to obtain the information needed to perform the agreement calculations (the exchange rate between USD/AUD (base/quote instrument) and BTC, the denominating asset.

PO attempts to create confusion between the “*reference*” [1B.1] and the “*value data*” terms of the independent claims, contending that “[t]he local currency instrument is not a ‘reference’ to a data source that could be argued to meet limitation 1B.2; rather, it is mere value data itself.” (POPR, 8; D.I., 19.) The above disclosure exposes PO’s mischaracterization of its own patent and claims. The claimed “*value data from at least one of the first data source or second data source*” used to obtain the “*output data*” of the “*inchoate data record*” [limitation [1C.3b] is the information (e.g., exchange rate) provided by the “*data source*” to the “*computing device*.” (See POPR, 10-11, *quoting* limitation [1C.3b].) That

“*value data*” is separate from the “*reference to at least one of a first data source or a second data source*” indicating to the computing device the proper “*data source*” from which to obtain the “*value data*” needed to create the “*output data*.” Moreover, the examples in the ’566 patent directly contradict PO. By using the local currency (e.g., USD) as the “*reference to ... [a] data source*” term, the facilitating system (1) identifies a data source (internal database or data feed) providing exchange rates between the local currency of the base/quote instrument and the denominating asset (e.g., USD to BTC) and (2) obtains the exchange rate at a time *t* (“*value data*”) from the data source to perform calculation(s).

Citing to the disclosure from the ’566 patent reproduced above (CB-1001, 11:55-56), the Board states: “We note that we understand the cited portion of the ’566 Patent to identify the data source as one of a base instrument or a quote instrument, rather than identifying the reference as one of these instrument.” (D.I., 9 n. 8.) The Board’s understanding is in error because, as discussed above, the ’566 patent makes clear the local currency of the quote/base instrument (e.g., AUD, USD) is **not** the “*data source*” but, instead, is a “*reference*” indicating to the facilitating device the “*data source*” (e.g., entity providing USD to Bitcoin exchange rate values) that provides the “*value data*” (e.g., exchange rate value) necessary to determine the “*output*” for the “*inchoate data record*.” Put differently, the exchange rate provider is an exemplary “*data source*”; and the local currency of the

“base instrument”/“quote instrument” are each a separate “*reference*” to that “*data source*.” (See *id.*) The Board misapprehended this critical distinction in the claims.

2. The Petition does not equate Armstrong’s exchange rate to the “*data source*” or “*reference*” to a “*data source*”.

Second, the Board, crediting the unsupported, attorney argument by PO, found that “even if we assume that a person of ordinary skill in the art would understand Armstrong to disclose an exchange rate, such disclosure would not constitute disclosure of a reference to that exchange rate” and “we do not understand an exchange rate to be a data source as required by claim 1.” (D.I., 20-21 (“Patent Owner further contends that the exchange rate in Armstrong is not a reference to a data source”), *citing* POPR, 11-12.) The Board’s second finding is in error because the Board misapprehended Petitioner’s argument.

The Petition does not equate Armstrong’s exchange rate to either the “*data source*” or the “*reference to ... [a] data source*.” The Petition explains a “POSITA would have understood the exchange rate used in Armstrong is **provided from** a ‘*data source*’ such as an external feed from an exchange rate provided or a database internal to the first host computer.” (Pet., 42 (emphasis added).) The Petition further provides extrinsic evidence (CB-1012, 6-7) identifying exemplary third-party exchange rate providers (i.e., “*data sources*”). (Pet., 42, *citing* CB-1012, 6-7.) The Petition identifies the entity providing the exchange rate between USD and Bitcoin as the “*data source*” [1B.2], the exchange rate as the “*value data from the*

data source” [1C.3b] and the quote instrument (local currency; e.g., USD) provided by the user as the “*reference*” to the “*data source*” [1B.2]. The Board misapprehended the differences between these claim requirements and Petitioner’s corresponding mapping of the prior art and, therefore, the D.I.’s conclusion that the combination does not invalidate limitation [1B.2] was erroneous.

3. The Petition provides substantial evidence the Hearn and Armstrong combination discloses “reference to ... [a] data source” [1B.2]

The Petition explains that the “*principal data*” of claim 1 is received with an **indication of the local currency** via the “*network interface*”:

Armstrong discloses the **amount to be transferred** from the originating party (e.g., Party A) for a transaction is a field entered via the user interface 36 of the first host computer. (*See, e.g.*, CB-1006, ¶86 (user interface 36 includes “field for entering an amount in bitcoin (or an **amount in local currency** that is converted to bitcoin **using an exchange rate**) that is being transferred from the wallet”), 103 (User “enters a bitcoin address ... and **an amount of bitcoin to be transferred** to the third wallet”); CB-1007, ¶¶52, 54; CB-1008, ¶¶67-60.)

(Pet., 41 (emphasis added).) This “local current instrument (e.g., USD) entered with the principal data over the network interface is a ‘*reference*’ to ‘*a data source*.’ (CB-1003, ¶¶108-110.” (Pet., 42.) As explained by Dr. Miller, the “local currency is therefore at least the ‘quote instrument’ because the price is quoted using that currency.” (CB-1003, ¶109.) The cited Armstrong disclosure is consistent

with the '566 patent's example, discussed above, in which the “*reference to a data source*” is one of “a base instrument” or “quote instrument.” (CB-1001, 11:55-56.)

The Petition's discussion of the limitation “*one or more output data obtained from at least one of the first principal data ... and a value data from at least one of the first data source ...*” [1C.3b] provides further evidence that the Petition provides a reasonable likelihood of prevailing for limitation [1B.2], explaining:

As discussed in §V.B.4.a, the “*principal data*” for Hearn's Example 7 are received in local currency (e.g., U.S. Dollars) in the combination of Hearn and Armstrong. As taught by Armstrong, “an amount in local currency [] is converted to bitcoin **using an exchange rate.**” (CB-1006, ¶86; CB-1007, ¶52; CB-1008, ¶67.) An exchange rate is “*a value data from at least one of the first data source*” (exchange rate provider or internal exchange rate database). (CB-1003, ¶134.) Thus, “*one or more output data*” in the combination of Hearn and Armstrong is “*obtained from at least one of the first principal data [maximum contract amount in local currency] ... and a value data [exchange rate] from at least one of the first data source [exchange rate provider or internal database]*” [1C.3b]. (CB-1003, ¶¶134-135.)

(Pet., 51-52 (emphasis added).) To obtain the “*output data*”, the combination of Hearn and Armstrong converts the principal data entered in local currency to Bitcoin using an exchange rate. The local currency type (USD) indicates that a conversion from USD to Bitcoin must be performed and is thus a “*reference*” to the data source used by the entity (e.g., internal database or data feed) that provides

this exchange rate. Without this indication of local currency type for the quote instrument, the computing device would not have sufficient information to determine what exchange rate to apply and what entity supplies that rate.

PO's unsupported contention that "[i]t is not clear from Armstrong itself that there is, in fact, any data source that provides an exchange rate" is plainly wrong. The Petition demonstrates Armstrong provides an exchange rate between Bitcoin and a local currency (e.g., USD). (Pet., 43, CB-1006, ¶86 ("an amount in **local currency [] is converted to bitcoin using an exchange rate**"), Figure 42.) This exchange rate comes from a data source and the Petition provides extrinsic evidence demonstrating external exchange rate feeds existed prior to the earliest possible priority date for the '566 patent. (CB-1001, 15:38-40; *see* Pet., 42.)

B. Petitioner's Substantial Evidence Established the Combination Discloses "*an Expiration Timestamp*" [1B.3].

The Board further found "that Petitioner has not demonstrated a reasonable likelihood of prevailing" for the limitation "*an expiration timestamp*" [1B.3]. (D.I., 21.) In reaching this conclusion, the Board found that "Petitioner does not provide adequate evidence in support of the proposed combination and relies on unsupported attorney argument in that the Petition does not adequately explain how Hearn's disclosure of a 1-day period of expiry equates to the disclosure of a term (specifically the "expiration timestamp" term) for receipt by a network interface as require [sic] by claim 1." (D.I., 22.) The Board's finding is in error because the

Board overlooked the substantial evidence provided by Petitioner and misapprehended Petitioner's explanation of how the combination of Hearn and Armstrong teaches or suggests limitation [1B.3].

1. Petition's Discussion of "*Expiration Timestamp*" Limitation is not "unsupported attorney argument"

The Petition's discussion of how the combination of Hearn and Armstrong teaches or suggests limitation [1B.3] does not rely "on unsupported attorney argument" (D.I., 22.) but is instead supported by expert testimony, extrinsic evidence, and the intrinsic record. First, the Petition's discussion is supported by the testimony of Dr. Andrew Miller who is an expert on cryptocurrency systems and has authored numerous papers on blockchain and cryptocurrencies. (See CB-1003, ¶¶6-14, CB-1004.) Dr. Miller's declaration does not merely parrot the Petition but instead supports the Petition with a detailed analysis of how the combination of Hearn and Armstrong meets the "*expiration timestamp*" limitation. (See CB-1003, ¶¶111-116.) For example, in paragraph 112 Dr. Miller explains that Hearn's "micropayment channel between the party A (client) and Party B (server) **expires after a pre-determined time.**" (See *id.*, ¶112 (emphasis added).) He continues: "Thus, when this pre-determined time expires, Party A (client) makes no further micropayments to Party B (server) and conversely Party B (server) accepts no further micropayments from Party A (client). That is, **this pre-determined time sets an expiration time for the payment channel (and the contract).** Therefore, this

pre-determined time is an “expiration timestamp.” (*See id.* (emphasis added).)

Moreover, Dr. Miller’s conclusion that Hearn’s “pre-determined time” is the claimed “*expiration timestamp*” is bolstered by Dr. Miller’s detailed explanation of the operation of Hearn’s micropayment contract in the Overview of Hearn (§V.D), cited throughout his analysis of limitation [1B.3]. (*See* CB-1003, ¶¶111-116 (testimony regarding “expiration timestamp” limitation), ¶¶56-70 (discussion of Hearn’s micropayment contract); ¶113 (citing to ¶¶56-70 for further details of Hearn’s micropayment contract).) Dr. Miller’s testimony is evidence relied upon by the Petition for limitation [1B.3]. (Pet., 43-44, *citing* CB-1003, ¶¶111-116.)

Second, in addition to cites to Hearn and Dr. Miller’s testimony, the Petition cites to two patents in support of the position that a “POSITA would have been motivated to permit a user (e.g., Party A) to enter the duration of the micropayment channel (contract) as well as the refund lock time and/or time offset over the network interface with other contract terms (e.g., “*principal data*”) when the contract is being formed.” (Pet., 44.) Specifically, U.S. Patent 8,135,650 to Walker (“Walker”; CB-1016), cited in the Petition and in Dr. Miller’s declaration, discloses the creation of a purchase offer between parties over the internet which specifies an “expiration time” for the offer. (*See* Pet., 44; CB-1016, 16:28-29; CB-1003, ¶115 (discussing Walker).) And U.S. Patent Publication 2015/0220892 to Allen (“Allen”; CB-1015) describes setting an “expiration date” for a digital

currency contract. (*See* Pet., 44; CB-1015, ¶54; CB-1003, ¶115 (discussing Allen).) This additional extrinsic evidence, relied upon in the Petition and discussed in Dr. Miller’s testimony, demonstrates that it was known (1) to include an expiration time as a contract term and (2) for an expiration time to be entered as a term over a network interface (the Internet). Therefore, the Petition’s argument that “Hearn’s disclosure of a 1-day period of expiry equates to the disclosure of” the claimed “*expiration timestamp*” is not mere attorney argument.

2. Petition Adequately Explains of How Hearn’s Disclosures Equates to the “Expiration Timestamp” Limitation.

The Board misapprehended the Petition’s explanation of the “*expiration timestamp*” limitation and/or overlooked the Petition’s cited evidence when it concluded “the Petition does not adequately explain how Hearn’s disclosure of a 1-day period of expiry equates to the disclosure of a term (specifically the “expiration timestamp” terms) for receipt by a network interface as require [sic] by claim 1.” (D.I., 22.) The Petition, supported by the testimony of Dr. Miller, when properly understood, provides an adequate explanation based on substantial evidence of how the combination meets this claim limitation.

The Petition establishes that Hearn discloses two ways in which its micro-payment contract can end: (1) parties can jointly agree to close the payment channel or (2) the 1-day time period for the contract expires. (Pet., 43, 21; ¶¶112, 59 (discussing expiration of “contract”), ¶69.) Because performance under the

contract ends when the 1-day period expires, and because 1-day is a fixed, pre-determined, time period, the 1-day time period is an “*expiration timestamp*” for the micropayment contract. (See Pet., 43-44; CB-1003, ¶112.)

Contrary to PO’s unsupported attorney argument, referenced by the Board, it is not a “leap” to call Hearn’s 1-day period a “pre-determined time.” (POPR, 14; D.I., 21-22.) To the contrary, it is express in Hearn. (Pet., 43 (“This continues until the session ends, or the 1-day period is getting close to expiry”); CB-1003, ¶112; CB-1009, 5.) The 1-day time period, setting the micropayment contract duration, is “predetermined” because it is determined before the start of the contract. (See Pet., 43-44; CB-1003, ¶112; CB-1009, 5.)

As further evidence that the 1-day period is an “*expiration timestamp*,” the Petition then explains that in Hearn, the expiration time of the contract (last payment transaction) occurs prior to a “lock time” (the time the refund transaction becomes spendable by Party A) to give Party B sufficient time to broadcast the final payment transaction to the network. (Pet., 44; ¶113.) That is, the lock time for the refund transaction is set to offset from the expiration time of the payment channel by a set amount (i.e., it occurs later). (Pet., 44; CB-1003, ¶113.) Dr. Miller provides a detailed explanation for the need and use of lock time in a Bitcoin transaction such as the contract described in Hearn. (See CB-1003, ¶113; ¶64 (“Thus, (T2) is time locked to ensure that the [refund] transaction cannot be accepted into the

blockchain until a specified time window has expired. (CB-1009, 5.) In other words, Party A (client) cannot redeem the refund until after the lock time has expired.”), ¶¶56-79 (explaining Hearn’s micropayment transaction flow); ¶113 (citing to ¶¶56-70 for further details on Hearn’s micropayment contract operation).) Therefore, contrary to PO’s unsupported attorney argument, it is not a “leap” that the “1-day period would have to be offset by a set amount”, it is a necessary aspect of a cryptocurrency system such as Hearn’s system to avoid fraudulent acts by a party. (See D.I., 21-22 *citing* POPR, 14; CB-1003, ¶¶113, 64; Pet., 43-44.)

The Petition next explains a “POSITA would have been motivated to permit a user (e.g., Party A) to enter the duration of the micropayment channel (contract) as well as the refund lock time and/or time offset over the network interface with other contract terms (e.g., “*principal data*”) when the contract is being formed.” (Pet., 44.) It is not a “leap” to allow parties to a contract with an untrusted entity or individual that allows for a series of micropayments to set a time certain when these payments can be made or accepted. It is also not a “leap” for a system that can be used to support a wide variety of micropayment contract applications, such as Armstrong’s, to allow the contract parties to set the duration based on “the type of service being provided or the level of trust between the parties.” (Pet., 44, CB-1003, ¶114.) The Petition provides a commonsense discussion, supported by testimony of Dr. Miller, motivating the inclusion of an expiration term in the contract

entered by the parties over the network interface. (Pet., 44.)

The Petition's explanation is also not "unsupported attorney argument", nor is Dr. Miller's testimony "conclusory" as argued by PO. (*See* D.I., 22, *citing* POPR, 22.) As discussed above, the Petition provides citations to extrinsic evidence showing that it was known (1) to include the expiration date as a contract term and (2) for an expiration time to be provided over a network interface (the Internet). (*See* Pet., 44, *citing* CB-1015 (Allen), ¶54, CB-1016 (Walker), 16:28-29.) Dr. Miller's supporting testimony, based on Hearn's disclosure, the Walker and Allen extrinsic evidence, and informed by his experience in cryptocurrency systems, provides a detailed discussion of the operation of Hearn's micropayment contract and the relevance of the Allen and Walker extrinsic evidence. Indeed, his opinions span nearly three full pages. (*See* CB-1003, pp. 71-74, ¶¶111-116.)

Therefore, the Petition provides substantial evidence from Hearn, the testimony of Dr. Miller, and the Walker and Allen extrinsic evidence in support of its proposed combination. Further, the Petition adequately explains, based on this evidence, how Hearn's disclosure of a 1-day period of expiry teaches or suggests to a POSITA the inclusion of an "expiration timestamp" over the network interface.

III. CONCLUSION

Petitioner therefore respectfully requests the D.I. be reversed and institution of IPR be granted.

Respectfully submitted,

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Dated: November 13, 2022

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing **PETITIONER’S REQUEST FOR REHEARING OF THE DECISION DENYING INSTITUTION** was served via electronic mail on counsel for Patent Owner as detailed below:

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